

Notice of Allowability

Application No.

10/519,933

Examiner

Mark Ruthkosky

Applicant(s)

IWASA ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/14/2007.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Mark Ruthkosky
Primary Patent Examiner
Art Unit 1745

8/21/2007

DETAILED ACTION

Response to Amendment

This office action is in response to applicant's after-final submission of a terminal disclaimer filed 8/14/2007.

Double Patenting

The rejection of claims 1-12 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,866,964 has been overcome by applicant's submission of a terminal disclaimer.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Please change the title to: "Secondary battery with a nitroxyl polymer active material."

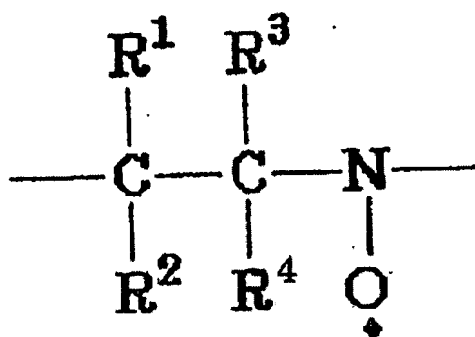
Allowable Subject Matter

Claims 1-12 are allowed.

The following is an examiner's statement of reasons for allowance:

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The instant claims are to a secondary battery comprising at least a positive electrode, a negative electrode, and an electrolyte, wherein at least one of the positive electrode and the negative electrode comprises a polymer having a repeating unit represented by formula (1) as an active material;



According to formula (1), R1, R2, R3 and R4 each independently represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon, a substituted or unsubstituted heteroaromatic group, a halogen atom, or an alkylene group that may be coupled to at least one or both of R1 and R3, and R2 and R4 to form a ring. The prior art does not teach a secondary battery having at least a positive electrode, a negative electrode, and an electrolyte, wherein the secondary battery an active material of the positive electrode and the negative electrode having a repeating unit represented by the formula, as claimed.

The most pertinent prior art has been made of record. Nakahara et al. (WO 02/082570) teaches a secondary battery having at least a positive electrode, a negative electrode, and an electrolyte, wherein the secondary battery includes a positive electrode of a polymer having an active material of at least one of the positive electrode and the negative electrode including the claimed functional moiety, wherein R1, R2, R3 and R4 each independently represents hydrogen

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atom, substituted or unsubstituted alkyl group, substituted or unsubstituted aromatic hydrocarbons, substituted or unsubstituted hetroaromatic groups, halogen atom, or alkylene group that may be coupled to the ring form at least one or both of R1 and R3, R2 and R4 (see the various formulae disclosed in the reference, for example on page 8.) The electrode may be used in a lithium battery (pages 10-14.) The structure does not include the nitrogen atom in the backbone of the polymer as required by claim 1 and thus, the polymer is a different structure than taught in the prior art.

Sato et al. (JP 2002-117854) teaches a secondary battery having at least a positive electrode, a negative electrode, and an electrolyte, wherein the secondary battery includes a positive electrode of a polymer having a repeating unit represented by formula (1) as an active material of at least one of the positive electrode and the negative electrode, wherein R1, R2, R3 and R4 each independently represents hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted aromatic hydrocarbons, substituted or unsubstituted hetroaromatic groups, halogen atom, or alkylene group that may be coupled to the ring form at least one or both of R1 and R3, R2 and R4 (see the various formulae disclosed in the reference, for example figures 5-7 in paragraph 34 and paragraph 36.) The electrode may be used in a lithium battery (p. 39-45.) The structure does not include the nitrogen atom in the backbone of the polymer as required by claim 1 and thus, the polymer is a different structure than taught in the prior art.

As the prior art does not teach a secondary battery comprising at least a positive electrode, a negative electrode, and an electrolyte, wherein at least one of the positive electrode and the negative electrode comprises a polymer having a repeating unit represented by formula (1) as an active material, the claims are allowed. Any comments considered necessary by

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applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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Mark Ruthkosky
8/21/07